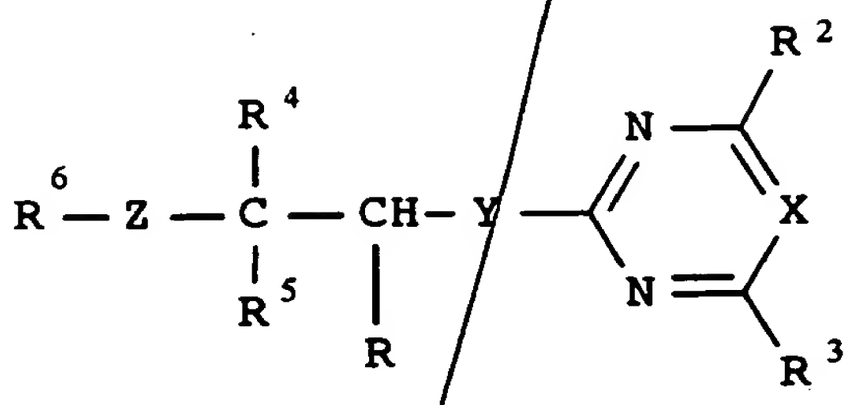
We claim:

The use of carboxylic acid derivatives of the formula I



I

where R is formyl, CO_2H or a radical which can be hydrolyzed to COOH, and the remaining substituents have the following meanings:

R^2 is halogen, C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy or C_1–C_4–alkylthio;

X is nitrogen or CR^{14} where R^{14} is hydrogen or, together with R^3, forms a 3– or 4–membered alkylene or alkenylene chain in which, in each case, one methylene group is replaced by oxygen;

R^3 is halogen, C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy, C_1–C_4–alkylthio or R^3 is linked to R^{14} as indicated above to form a 5– or 6–membered ring;

R^4 is C_1–C_{10}–alkyl which can carry from one to five halogen atoms and/or one of the following radicals: C_1–C_4–alkoxy, C_1–C_4–alkylthio, cyano, C_1–C_8–alkylcarbonyl, C_1–C_8–alkoxycarbonyl, phenyl, phenoxy or phenylcarbonyl, where the phenyl radicals in turn can carry from one to five halogen atoms and/or from one to three of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy and/or C_1–C_4–alkylthio;

C_1–C_{10}–alkyl which can carry from one to five halogen atoms and carries one of the following radicals: a five-membered heteroaromatic ring which contains from one to three nitrogen atoms and/or one sulfur or oxygen atom and which can carry from one to four halogen atoms and/or one or two of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy, C_1–C_4–alkylthio and/or phenyl;

Sat A' cont

C_3–C_{12}–cycloalkyl or C_3–C_{12}–cycloalkenyl, each of which can contain one oxygen or sulfur atom and can carry from one to five halogen atoms and/or one of the following radicals: C_1–C_4–alkyl, C_1–C_4–alkoxy, C_1–C_4–alkylthio, cyano, C_1–C_8–alkylcarbonyl, C_1–C_8–alkoxycarbonyl, phenyl, phenoxy or phenylcarbonyl, where the phenyl radicals in turn can carry from one to five halogen atoms and/or from one to three of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy and/or C_1–C_4–alkylthio;

C_3–C_6–alkenyl or C_3–C_6–alkynyl, each of which can carry from one to five halogen atoms and/or one of the following radicals: C_1–C_4–alkyl, C_1–C_4–alkoxy, C_1–C_4–alkylthio, cyano, C_1–C_8–alkylcarbonyl, C_1–C_8–alkoxycarbonyl, phenyl, phenoxy or phenylcarbonyl, where the phenyl radicals in turn can carry from one to five halogen atoms and/or from one to three of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy and/or C_1–C_4–alkylthio;

a five– or six–membered heteroaromatic ring which contains from one to three nitrogen atoms and/or one sulfur or oxygen atom and which can carry from one to four halogen atoms and/or one or two of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy, C_1–C_4–alkylthio, phenyl, phenoxy or phenylcarbonyl, where the phenyl radicals in turn can carry from one to five halogen atoms and/or from one to three of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy and/or C_1–C_4–alkylthio;

phenyl or naphthyl, each of which can be substituted by one or more of the following radicals: halogen, nitro, cyano, hydroxyl, C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy, phenoxy, C_1–C_4–alkylthio, amino, C_1–C_4–alkylamino or C_1–C_4–dialkylamino;

R^4 and R^5 form, together with the adjacent carbon atom, a 3– to 8–membered ring which can contain one oxygen or sulfur atom and can carry from one to three of the following radicals: C_1–C_4–alkyl, halogen, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy and/or C_1–C_4–akylthio [sic];

R^5 is hydrogen, C_1–C_4–alkyl, C_3–C_6–alkenyl, C_3–C_6–alkynyl, C_3–C_8–cycloalkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxyalkyl, C_1–C_4–alkylthioalkyl, phenyl or R^5 is linked to R^4 as indicated above to form a 3– to 8–membered ring;

R^6 is C_1–C_8–alkyl, C_3–C_6–alkenyl, C_3–C_6–alkynyl or C_3–C_8–cycloalkyl, it being possible for each of these radicals to be substituted one or more times by: halogen, nitro, cyano, C_1–C_4–alkoxy, C_3–C_6–alkenyloxy, C_3–C_6–alkynyloxy, C_1–C_4–alkylthio, C_1–C_4–haloalkoxy, C_1–C_4–alkylcarbonyl, C_1–C_4–alkoxycarbonyl, C_1–C_4–alkylamino, di–C_1–C_4–alkylamino, phenyl, phenoxy or phenyl which is substituted one or more times, eg. from one to three times, by halogen, nitro, cyano, C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy or C_1–C_4–alkylthio;

phenyl or naphthyl, each of which can be substituted by one or more of the following radicals: halogen, nitro, cyano, hydroxyl, amino, C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy, phenoxy, C_1–C_4–alkylthio, C_1–C_4–alkylamino or C_1–C_4–dialkylamino;

a five– or six–membered heteroaromatic ring which contains from one to three nitrogen atoms and/or one sulfur or oxygen atom and which can carry from one to four halogen atoms and/or one or two of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy, C_1–C_4–alkylthio, phenyl, phenoxy or phenylcarbonyl, where the phenyl radicals in turn can carry from one to five halogen atoms and/or from one to three of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy and/or C_1–C_4–alkylthio;

Y is sulfur or oxygen or a single bond;

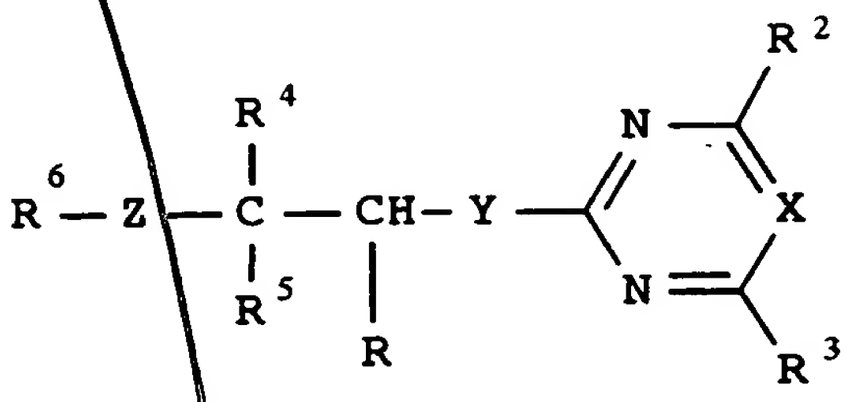
Z is sulfur or oxygen;

for the production of drugs.

The use of carboxylic acid derivatives as drugs

Abstract

The use of carboxylic acid derivatives of the formula I



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R^4 is C_1–C_{10}–alkyl which can carry from one to five halogen atoms and/or one of the following radicals: C_1–C_4–alkoxy, C_1–C_4–alkylthio, cyano, C_1–C_8–alkylcarbonyl, C_1–C_8–alkoxycarbonyl, phenyl, phenoxy or phenylcarbonyl, where the phenyl radicals in turn can carry from one to five halogen atoms and/or from one to three of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy and/or C_1–C_4–alkylthio;

C_1–C_{10}–alkyl which can carry from one to five halogen atoms and carries one of the following radicals: a five-membered heteroaromatic ring which contains from one to three nitrogen atoms and/or one sulfur or oxygen atom and which can carry from one to four halogen atoms and/or one or two of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy, C_1–C_4–alkylthio and/or phenyl;

C_3–C_{12}–cycloalkyl or C_3–C_{12}–cycloalkenyl, each of which can contain one oxygen or sulfur atom and can carry from one to five halogen atoms and/or one of the following radicals: C_1–C_4–alkyl, C_1–C_4–alkoxy, C_1–C_4–alkylthio, cyano, C_1–C_8–alkylcarbonyl, C_1–C_8–alkoxycarbonyl, phenyl, phenoxy or phenylcarbonyl, where the phenyl radicals in turn can carry from one to five halogen atoms and/or from one to three of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy and/or C_1–C_4–alkylthio;

C_3–C_6–alkenyl or C_3–C_6–alkynyl, each of which can carry from one to five halogen atoms and/or one of the following radicals: C_1–C_4–alkyl, C_1–C_4–alkoxy, C_1–C_4–alkylthio, cyano, C_1–C_8–alkylcarbonyl, C_1–C_8–alkoxycarbonyl, phenyl, phenoxy or phenylcarbonyl, where the phenyl radicals in turn can carry from one to five halogen atoms and/or from one to three of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy and/or C_1–C_4–alkylthio;

a five– or six-membered heteroaromatic ring which contains from one to three nitrogen atoms and/or one sulfur or oxygen atom and which can carry from one to four halogen atoms and/or one or two of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy, C_1–C_4–alkylthio, phenyl, phenoxy or phenylcarbonyl, where the phenyl radicals in turn can carry from one to five halogen atoms and/or from one to three of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy and/or C_1–C_4–alkylthio;

phenyl or naphthyl, each of which can be substituted by one or more of the following radicals: halogen, nitro, cyano, hydroxyl, C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy, phenoxy, C_1–C_4–alkylthio, amino, C_1–C_4–alkylamino or C_1–C_4–dialkylamino;

R^4 and R^5 form, together with the adjacent carbon atom, a 3– to 8–membered ring which can contain one oxygen or sulfur atom and can carry from one to three of the following radicals: C_1–C_4–alkyl, halogen, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy and/or C_1–C_4–akylthio [sic];

R^5 is hydrogen, C_1–C_4–alkyl, C_3–C_6–alkenyl, C_3–C_6–alkynyl, C_3–C_8–cycloalkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxyalkyl, C_1–C_4–alkylthioalkyl, phenyl or R^5 is linked to R^4 as indicated above to form a 3– to 8–membered ring;

R^6 is C_1–C_8–alkyl, C_3–C_6–alkenyl, C_3–C_6–alkynyl or C_3–C_8–cycloalkyl, it being possible for each of these radicals to be substituted one or more times by: halogen, nitro, cyano, C_1–C_8–alkoxy, C_3–C_6–alkenyloxy, C_3–C_6–alkynyloxy, C_1–C_4–alkylthio, C_1–C_4–haloalkoxy, C_1–C_4–alkylcarbonyl, C_1–C_4–alkoxycarbonyl, C_1–C_4–alkylamino, di–C_1–C_4–alkylamino, phenyl, phenoxy or phenyl which is substituted one or more times, eg. from one to three times, by halogen, nitro, cyano, C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy or C_1–C_4–alkylthio;

phenyl or naphthyl, each of which can be substituted by one or more of the following radicals: halogen, nitro, cyano, hydroxyl, amino, C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy, phenoxy, C_1–C_4–alkylthio, C_1–C_4–alkylamino or C_1–C_4–dialkylamino;

a five– or six–membered heteroaromatic ring which contains from one to three nitrogen atoms and/or one sulfur or oxygen atom and which can carry from one to four halogen atoms and/or one or two of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy, C_1–C_4–alkylthio, phenyl, phenoxy or phenylcarbonyl, where the phenyl radicals in turn can carry from one to five halogen atoms and/or from one to three of the following radicals: C_1–C_4–alkyl, C_1–C_4–haloalkyl, C_1–C_4–alkoxy, C_1–C_4–haloalkoxy and/or C_1–C_4–alkylthio;

Y is sulfur or oxygen or a single bond;

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for the production of drugs.